

Screening History for the Part 503 Round One and Two Proposals

- I. A Preliminary Hazard Identification Study was conducted to identify a pollutant candidate list for the Round Two proposal. An initial set of candidates were composed of the 411 pollutants analyzed in the 1988 National Sewage Sludge Survey (NSSS). This included every organic pollutant including pesticides, dibenzofuran, dioxin, and PCB analytes for which EPA had gas chromatography and mass spectrometry standards (58 FR 9268-9269).

Most of the original 411 pollutants were eliminated for consideration in the Round Two rulemaking due to the following:

- Ten pollutants were eliminated because they were regulated in the Round One rule (i.e., metals).
- Total residue was eliminated because it is the inert material left after all the pollutants have been extracted from the sewage sludge.
- Total kjeldahl nitrogen (i.e., the sum of the concentrations of ammonia and organic nitrogen compounds) was eliminated because the concentrations of the individual compounds cannot be discerned and because nitrogen is already controlled through management practices in Part 503.
- Dinoseb (a herbicide) was eliminated because all U.S. uses have been cancelled, and the analysis of this compound could not be conducted in the 1988 NSSS.

(398 pollutants remaining)

- Two classes of pollutants were formed by aggregating individual pollutants.
 - ▶ Seven PCB Aroclor mixtures were combined into one category (6 pollutants eliminated).
 - ▶ Twenty-five dioxins/dibenzofurans were combined by multiplying each congener's concentration by its corresponding toxicity equivalency factor and adding the resultant values over all congeners (24 pollutants eliminated).

(368 pollutants remaining)

- 254 pollutants were eliminated from further consideration because they had a frequency detection of less than one percent in sewage sludge sampled in the 1988 NSSS.

(114 pollutants remaining)

- Of the remaining 114 pollutants, 69 were eliminated from further consideration because they were detected less than ten percent of the time **and** the results of a toxicity analysis indicated that the pollutants did not have the potential to adversely affect human health or the environment.
 - ▶ Either an oral risk reference dose (RfD) or an oral cancer potency value (Q*) was needed to calculate risk to human health, and a risk quotient (RQ) was needed to calculate ecological risk. Of the 69 pollutants eliminated, 49 had at least one of these estimates of toxicity. *The remaining 20 pollutants were excluded because there was not enough information currently available to conduct a toxicity assessment. As a result, they were added to Table 1 below.*
 - ▶ Six of 49 pollutants (i.e., aldrin, dieldrin, DDT, DDE, trichloroethene, and benzo(a)pyrene) had already been assessed in the Round One rule and were eliminated from further consideration. As a result, EPA estimated risk for 43 of the 69 pollutants eliminated in this screening phase.
 - ▶ For all but one of the 43 pollutants, the ratio of exposure to RfD was below one; the cancer risk was below one in 10,000; and the RQ was below one. *The ratio of exposure to RfD was five for 2-picoline.* However, EPA chose not to evaluate it further because it was only detected one percent of the time in the 1988 NSSS. *Because the RfD for 2-picoline was greater than one, it was added to Table 1 below.*

(45 pollutants remaining)

- *Of the 45 pollutants, 15 had no human or ecological toxicity data available. As a result, they were added to Table 1 below.*

(30 pollutants remaining)

- Asbestos was raised as a possible candidate during the public comment period for the Round One rule. Even though asbestos was not one of the 411 pollutants analyzed in the 1988 NSSS, it is known to be present in sewage sludge. As a result, asbestos was included as a potential Round Two pollutant candidate.

(31 pollutants remaining)

Summary: In May 1993, as a result of the Preliminary Hazard Identification Study, EPA reported to the Court that it would include 31 pollutants on its preliminary candidate list for potential regulation in Round Two.

II. A Comprehensive Hazard Identification Study was conducted on the 31 pollutant

candidates identified in the preliminary study to determine the final list for Round Two.

- Based on the results of the assessment, 12 of the 31 pollutant candidates had critical pathways for land application, and 5 of the 12 pollutant candidates also had critical pathways for surface disposal. There were no pollutants that had critical pathways for incineration. The remaining 19 pollutants did not have critical pathways for land application, surface disposal, or incineration and, as a result, were eliminated from further consideration.

(12 pollutants remaining)

- It was concluded that 10 inorganic pollutants with critical pathways for land application and surface disposal should not be included on the final list of pollutants for Round Two. The justifications were made on a pollutant by pollutant basis. *Of these 10 inorganic pollutants, eight were eliminated due to a lack of data and were added to Table 1 below.*

(2 pollutants remaining)

Summary: In November 1995, as a result of the Comprehensive Hazard Identification Study, EPA reported to the Court that it would consider proposing Round Two regulation for two pollutants: dioxins/dibenzofurans and coplanar PCBs.

Table 1. 44 Candidate Pollutants Identified for Further Research

2-Picoline	Cobalt
Docosane, n - *	Octadecane, n - *
Benzo(B)fluoranthene	Cymene, p - *
BHC, beta -	Benzo(K)fluoranthene
Chrysene	Hexanone, 2 - *
Benz(A)anthracene	Nitrofen (TOK)
BHC, alpha -	Diepoxybutane, 1,2:3,4 - *
Pentanone, 4-methyl-2- *	Phenanthrene
Phosphoric acid, tri-o-tolyl ester *	Terpineol, alpha - *
Tetraethylpyrophosphate *	Dibenzofuran *
Methylnaphthalene, 2 -	Calcium *
Decane, n - ¹ *	Dodecane, n - *
Eicosane, n - *	Hexacosane, n - *
Hexadecane, n - *	Hexanoic acid *
Iron	Magnesium *
Octacosane, n - *	Sodium *
Tetracosane, n - *	Tetradecane, n - *
Triacontane, n - *	Yttrium
Aluminum	Antimony
Barium	Boron
Fluoride	Manganese
Tin	Titanium

- **Note:** Subsequently, 23 of the 44 candidate pollutants identified for further research are considered to be non-toxic or non-persistent in the terrestrial environment at the concentrations found in sewage sludge and are, therefore, being eliminated from further consideration for potential addition to the Part 503 rule. *The remaining 21 candidate pollutants are being considered for further research.*